

CLAIMS

What is Claimed is:

- 1 1. A system for controlling access to digital services comprising:
 - 2 (a) a control center configured to coordinate and provide digital services;
 - 3 (b) an uplink center configured to receive the digital services from the control center
 - 4 and transmit the digital services to a satellite;
 - 5 (c) the satellite configured to:
 - 6 (i) receive the digital services from the uplink center;
 - 7 (ii) process the digital services; and
 - 8 (iii) transmit the digital services to a subscriber receiver station;
 - 9 (d) the subscriber receiver station configured to:
 - 10 (i) receive the digital services from the satellite;
 - 11 (ii) control access to the digital services through an integrated
 - 12 receiver/decoder (IRD);
 - 13 (e) a conditional access module (CAM) communicatively coupled to the IRD,
 - 14 wherein the CAM comprises:
 - 15 (i) a protected nonvolatile memory component, wherein:
 - 16 (1) the protected nonvolatile memory component is used to contain
 - 17 state information to provide desired functionality and enforce one or more
 - 18 security policies for accessing the digital services; and
 - 19 (2) the protected nonvolatile memory component and a
 - 20 microprocessor's nonvolatile memory component share a programming charge
 - 21 pump and programming control; and
 - 22 (ii) a fixed state custom logic block configured to control access to the
 - 23 nonvolatile memory component.
- 1 2. The system of claim 1 wherein the custom logic block has a fixed algorithm that
- 2 cannot be altered by external means.

1 3. The system of claim 1 wherein access to a block of the protected nonvolatile
2 memory component is limited to one or more functions defined in the custom logic block.

1 4. The system of claim 1 wherein the custom logic block is implemented in solid
2 state hardware that implements a simple and well defined state machine.

1 5. The system of claim 1 wherein the protected nonvolatile memory component is
2 not accessible through a system input/output module, system bus, microprocessor, or external
3 environment.

1 6. The system of claim 1 wherein the nonvolatile memory component is exclusively
2 controlled through the custom logic block and does not require the use of a system bus or
3 microprocessor.

1 7. The system of claim 1 wherein a microprocessor's nonvolatile memory
2 component and the protected nonvolatile memory component use the same physical and logical
3 address ranges.

1 8. A method for limiting unauthorized access to digital services comprising:

2 (a) configuring a protected nonvolatile memory component, wherein:

3 (i) the protected nonvolatile memory component is used to contain state
4 information to provide desired functionality and enforce one or more security policies for
5 accessing the digital services; and

6 (ii) the protected nonvolatile memory component and a microprocessor's
7 nonvolatile memory component share a programming charge pump and programming
8 control; and

9 (b) controlling access to the nonvolatile memory component through a fixed state
10 custom logic block .

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1 9. The method of claim 8 wherein the custom logic block has a fixed algorithm that
2 cannot be altered by external means.

1 10. The method of claim 8 wherein access to a block of the protected nonvolatile
2 memory component is limited to one or more functions defined in the custom logic block.

1 11. The method of claim 8 wherein the custom logic block is implemented in solid
2 state hardware that implements a simple and well defined state machine.

1 12. The method of claim 8 wherein the protected nonvolatile memory component is
2 not accessible through a system input/output module, system bus, microprocessor, or external
3 environment.

1 13. The method of claim 8 wherein the nonvolatile memory component is exclusively
2 controlled through the custom logic block and does not require the use of a system bus or
3 microprocessor.

1 14. The method of claim 8 wherein a microprocessor's nonvolatile memory
2 component and the protected nonvolatile memory component use the same physical and logical
3 address ranges.

1 15. A conditional access module (CAM), comprising:
2 (a) a protected nonvolatile memory component, wherein:
3 (i) the protected nonvolatile memory component is used to contain state
4 information to provide desired functionality and enforce one or more security policies for
5 accessing digital services; and
6 (ii) the protected nonvolatile memory component and a microprocessor's
7 nonvolatile memory component share a programming charge pump and programming
8 control; and

9 (b) a fixed state custom logic block configured to control access to the nonvolatile
10 memory component.

1 16. The CAM of claim 15 wherein the custom logic block has a fixed algorithm that
2 cannot be altered by external means.

1 17. The CAM of claim 15 wherein access to a block of the protected nonvolatile
2 memory component is limited to one or more functions defined in the custom logic block.

1 18. The CAM of claim 15 wherein the custom logic block is implemented in solid
2 state hardware that implements a simple and well defined state machine.

1 19. The CAM of claim 15 wherein the protected nonvolatile memory component is
2 not accessible through a system input/output module, system bus, microprocessor, or external
3 environment.

1 20. The CAM of claim 15 wherein the nonvolatile memory component is exclusively
2 controlled through the custom logic block and does not require the use of a system bus or
3 microprocessor.

1 21. The CAM of claim 15 wherein a microprocessor's nonvolatile memory
2 component and the protected nonvolatile memory component use the same physical and logical
3 address ranges.

1 22. An article of manufacture for preventing unauthorized access to digital services
2 comprising:

3 (a) means for configuring a protected nonvolatile memory component, wherein:
4 (i) the protected nonvolatile memory component is used to contain state
5 information to provide desired functionality and enforce one or more security policies for
6 accessing the digital services; and

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7 (ii) the protected nonvolatile memory component and a microprocessor's
8 nonvolatile memory component share a programming charge pump and programming
9 control; and

10 (b) means for controlling access to the nonvolatile memory component through a
11 fixed state custom logic block.

1 23. The article of manufacture of claim 22 wherein the custom logic block has a
2 fixed algorithm that cannot be altered by external means.

1 24. The article of manufacture of claim 22 wherein access to a block of the
2 protected nonvolatile memory component is limited to one or more functions defined in the
3 custom logic block.

1 25. The article of manufacture of claim 22 wherein the custom logic block is
2 implemented in solid state hardware that implements a simple and well defined state machine.

1 26. The article of manufacture of claim 22 wherein the protected nonvolatile
2 memory component is not accessible through a system input/output module, system bus,
3 microprocessor, or external environment.

1 27. The article of manufacture of claim 22 wherein the nonvolatile memory
2 component is exclusively controlled through the custom logic block and does not require the use
3 of a system bus or microprocessor.

1 28. The article of manufacture of claim 22 wherein a microprocessor's nonvolatile
2 memory component and the protected nonvolatile memory component use the same physical
3 and logical address ranges.

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